

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Currently Amended) A radio digital signal receiver for receiving a broadcast signal obtained by multiplexing ~~a plurality of kinds of polyphase PSK-modulating signals having respective different numbers of phases~~ an 8PSK-modulating signal, a QPSK-modulating signal and a BPSK-modulating signal, the receiver comprising:

means for individually detecting a received C/N (5) and a decoding error rate of a received decoded digital signal (7);

decision means (8) for estimating and deciding ~~the quality inherent~~ phase noise characteristics of a local oscillator in an outdoor unit connected to a receiving terminal of the radio digital signal receiver on the basis of ~~foresight information for the relationship among three values of a received C/N, a decoding error rate and a phase noise and the detected received C/N and a~~ decoding error rate, in a burst symbol reception mode for regenerating a carrier from only ~~a polyphase PSK-modulating signal having the minimum number of phases of the received plurality of kinds of polyphase PSK-modulating signals~~ the received BPSK-modulating signal the detected decoding error rate being one detected when the received C/N exceeds a first predetermined threshold value; where if the detected decoding error rate is equal to or less than a second predetermined threshold, the phase noise characteristics are ~~decided to be higher quality~~ determined to be fairly good, while if the detected decoding error rate exceeds the second predetermined threshold, the phase noise characteristics are ~~decided to be lower quality~~ determined not to be good;

means (8) for selecting and switching characteristics of a carrier regenerative loop characteristic (1, 3, 6, 9, 10, 2) on the basis of the ~~quality of the~~ estimated inherent phase noise characteristics of the local oscillator in the outdoor unit, wherein the means for selecting and switching a carrier regenerative loop characteristic is adapted to operates operate so that (i) if it is ~~decided~~ determined by the decision means that the phase noise characteristics are ~~higher-quality~~ fairly good, a carrier regenerative loop characteristic corresponding to a critical CNR ~~by a phase noise having a rapid variation property~~ where a noise bandwidth is made narrow is selected and (ii) if it is ~~decided~~ determined by the decision means that the phase noise characteristics are ~~lower-quality~~ not good, a carrier regenerative loop characteristic corresponding to a critical CNR ~~by a phase noise having a gentle variation property~~ where the noise bandwidth is made large is selected; and

means (8) for shifting the operation of the receiver from the burst symbol reception mode to a continuation reception mode after selecting and switching the carrier regenerative loop characteristic, the continuation reception mode allowing a carrier to be regenerated one by another from respective ones of the received plurality ~~of kinds of polyphase PSK modulating signals~~ 8PSK-modulating signal, QPSK-modulating signal and BPSK-modulating signal.

3. (Currently Amended) The radio digital signal receiver according to claim 2, wherein said means for ~~setting the~~ selecting and switching the carrier loop characteristics sets a filter factor of a loop filter (9) inserted into the carrier regenerative loop (1, 3, 6, 9, 10, 2).

4.-7. (Canceled)

8. (Currently Amended) The radio digital signal receiver according to ~~claim 6~~ claim 3, wherein said means for ~~changing said~~ selecting and switching the carrier

regenerative loop characteristics changes the filter factor of a loop filter (9) inserted into the carrier regenerative loop (1, 3, 6, 9, 10, 2).

9.-10. (Canceled)

11. (Currently Amended) A signal processing method used in a radio digital signal receiver for receiving a broadcast signal obtained by multiplexing a plurality of kinds of polyphase PSK modulating signals having respective different numbers of phases an 8PSK-modulating signal, a QPSK-modulating signal and a BPSK-modulating signal and for down-converting ~~[[a]] received modulation signal~~ modulation signals by using a down-converter, demodulating the received ~~modulated signal~~ modulating signals by using a regenerated carrier and decoding a digital signal from a ~~demodulated signal~~ demodulated signals, said method comprising the steps of:

detecting a received C/N of said received ~~modulated signal~~ modulating signals on the basis of said ~~demodulated signal~~ demodulated signals;

determining whether said detected received C/N exceeds a first predetermined threshold value;

when said received C/N is determined to exceed said first predetermined threshold value,

detecting a decoding error rate of ~~[[said]]~~ a decoded digital signal, wherein the decoding error rate to be detected is a bit error rate of a ~~predetermined polyphase PSK-modulating signal of the received plurality of kinds of polyphase PSK-modulating signals~~, the received 8PSK-modulating signal, which is demodulated in a burst symbol reception mode for regenerating a carrier from only a ~~polyphase PSK-modulating signal having the minimum number of phases of the plurality of kinds of polyphase~~ the received BPSK-modulating signal and PSK-modulating signals;

comparing the magnitude of the detected decoding error rate with a second predetermined threshold value, where if the detected decoding error rate is equal to or

less than the second predetermined threshold, the phase noise characteristics of the down-converter are ~~decided to be higher quality~~ determined to be fairly good, while if the detected decoding error rate exceeds the second predetermined threshold, the phase noise characteristics of the down-converter are ~~decided to be lower quality~~ determined not to be good, the ~~decision~~ determination being made on the basis of ~~foresight information for the relationship among three values of a received C/N, a decoding~~ decoded error rate and an inherent a phase noise of a local oscillator in the down-converter, and

selecting and switching the characteristic of ~~[[the]]~~ a carrier regenerative loop on the basis of the ~~decided quality of the phase noise~~ phase noise characteristics of the down-converter, wherein the step for selecting and switching the carrier regenerative loop characteristics is performed so that (i) if ~~a detected decoding error rate is equal to or less than a second predetermined threshold value it is decided~~ it is determined that the phase noise characteristics are ~~higher quality~~ fairly good, a carrier regenerative loop characteristic corresponding to a critical CNR ~~by a phase noise having a rapid variation property~~ where a noise bandwidth is made narrow is selected, and (ii) if it is ~~decided~~ determined that the phase noise characteristics are ~~lower quality~~ not good, a carrier regenerative loop characteristic corresponding to a critical CNR ~~by a phase noise having a gentle variation property~~ where the noise bandwidth is made large is selected; and

shifting the operation of the receiver from the burst symbol reception mode to a continuation reception mode after selecting and switching the carrier regenerative loop characteristic, the continuation reception mode allowing a carrier to be regenerated one by another from respective ones of the received ~~plurality of kinds of polyphase PSK-modulating signals~~ 8PSK-modulating signal, QPSK-modulating signal and BPSK-modulating signal.